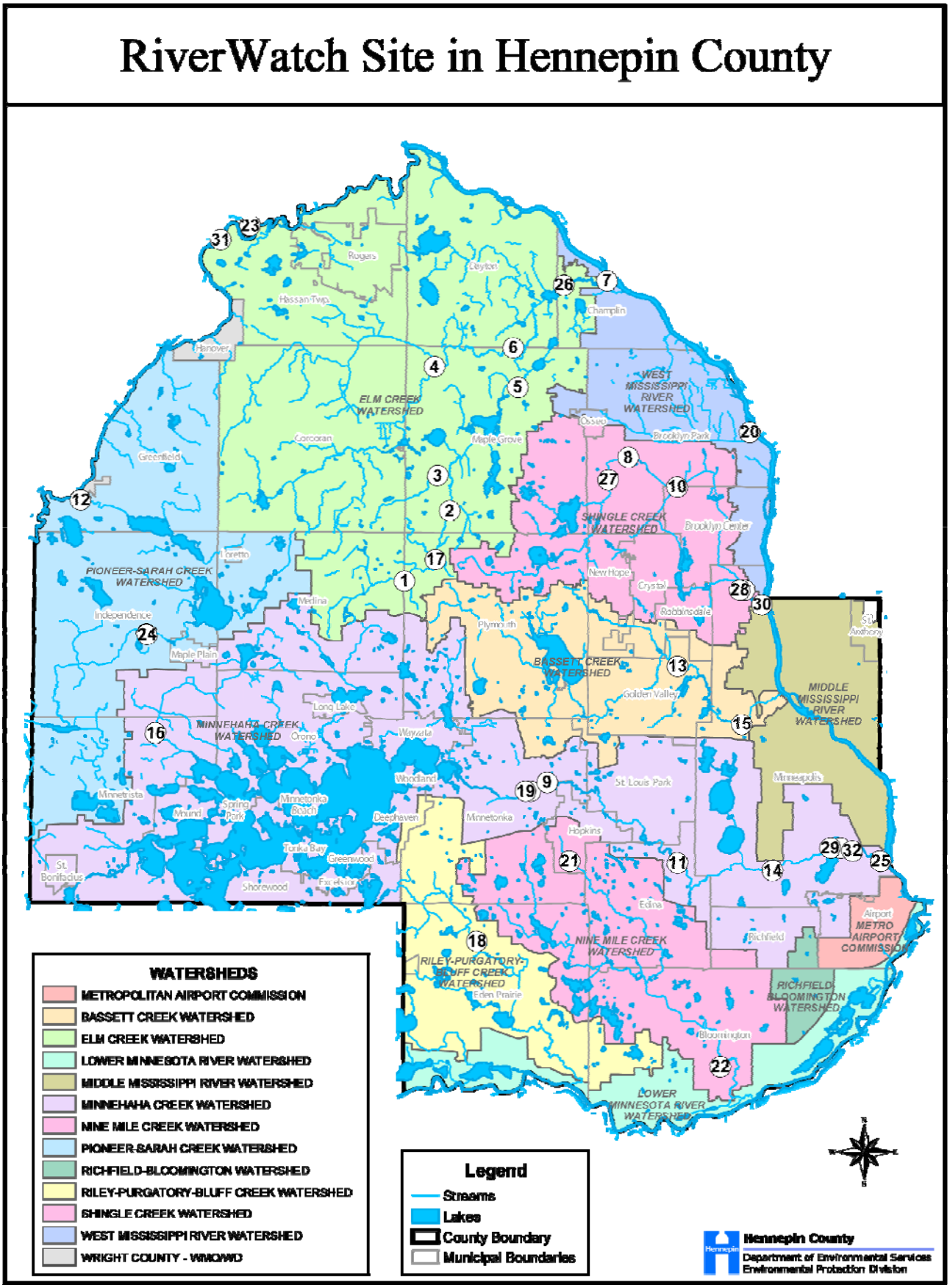
RiverWatch Site in Hennepin County



2007 River Watch

Currently, there are four sites on Elm Creek and two sites on Rush Creek that are being monitored as part of the Hennepin County River Watch program.

Data from Elm Creek indicate fairly good diversity among taxa (families). The numbers are good for richness although the number of EPT (Ephemeroptera, Plecoptera and Trichoptera) is very low, indicating that the majority of families are very tolerant to organic pollution. The results fall within the ranges of historic data indicating that Elm Creek is fairly impaired. These results from 2007 continue to support the data and evaluations made since 1996. Elm Creek appears on the Minnesota Pollution Control 2008 Impaired Waters list for aquatic life (Dissolved Oxygen).

For Rush Creek, the taxa richness metric indicates a fairly diverse sample. Eighteen families within a sample is approaching the number found in healthy streams. While EPT numbers are a bit low, it is important to note the presence of stoneflies in the sample from Rush Creek since stoneflies are the most sensitive of all families. Rush Creek appears on the Minnesota Pollution Control 2008 Impaired Waters list for aquatic life (fish).

Site 3

This site was monitored from 1997-2005 and returned to the schedule in 2007. It is on an unnamed tributary of Elm Creek just east of Lawndale Lane in Maple Grove. This area is primarily residential. Champlin High School teacher Lana Rohrer and her biology students monitored the site in 2007.

The dominant family is Hydropsychidae, more commonly referred to as “caddisfly,” which has a tolerance value of 4, indicating a fairly low tolerance to organic pollution. The Family Biotic Index lists this site as “Fair.”

Results for Site 3

Date	Total Number of Organisms	Family Biotic index	EPT	Number of Families	Dominant family	Dominant family % overall
5/7/97	<100	6.1	1	8	Simuliidae	71.0
10/1/97	<100	5.1	2	6	Hydropsychidae	33.0
5/6/98	<100	6.0	1	6	Simuliidae	47.0
5/4/01	471	6.0	0	5	Chironomidae	80.0
9/21/02	134	4.6	2	5	Baetidae	63.0
5/8/03	39	6.2	0	5	Simuliidae	69.0
5/5/04	100	6.0	1	4	Chironomidae	71.0
10/1/04	108	6.4	3	8	Chironomidae	52.8
5/15/05	95	6.0	0	3	Chironomidae	81.0
10/12/07	79	5.2	3	14	Hydropsychidae	40.0

Site 4

This is farthest upstream sample site on Rush Creek. Rush Creek is a tributary of Elm Creek, north of its main stem. This is the only site on the south fork of Rush Creek and the only grazed agricultural sample site in the River Watch program. Cattle are often present in or near the stream. Water draining from most of Corcoran and northern Maple Grove flows into this stretch of creek. The site was monitored in 2006 and 2007 by teacher Paula Nelson and her students at Kaleidoscope Charter School.

Site 4

Kaleidoscope Students — Site 4

This site is located on a farm and the stream often plays host to the resident cattle. The dominant family is Chironomidae, which is often referred to as a "midge." These invertebrates are very common in streams and often serve as food for other macroinvertebrates and fish. Their tolerance value is an "8," which indicates a high tolerance to organic pollution.

The site was sampled in both spring and fall, receiving family biotic indices of 5.6 and 7 respectively, indicating "Fairly Poor" to "Poor" water quality.

Results for Site 4

Date	Total Number of Organisms	Family Biotic index	EPT	Number of Families	Dominant family	Dominant family % overall
10/7/02	72	6.9	2	11	Oligochaeta	46.0
5/3/04	166	6.0	1	7	Simuliidae	66.0
10/1/04	200	6.4	3	5	Chironomidae	67.5
5/8/06	142	6.9	5	19	Hyalellidae	53.5
10/10/06	350	7	2	13	Hyalellidae	27.7
4/30/07	162	5.6	1	8	Chironomidae	88.0
10/12/07	117	7	3	21	Chironomidae	88.0

Site 5

This Elm Creek sample site is directly downstream from Rice Lake. The site is located in a wooded natural area, but the riffles are typically small. The water flow varies. Sometimes the water flows over the upstream dam, which oxygenates the water. At other times it runs through a bypass culvert and has more of the characteristics of lake water.

Maple Grove High School teacher Gary Gerst started monitoring this site in the spring of 1996. Elm Creek runs directly behind the school, giving the students an excellent opportunity to learn about their local creek.

The consistently high biotic index and relatively low EPT at Site 5 reflect an impacted site with fairly poor water quality and substantial organic pollution. Some families that are more common in lakes have been collected at this site, likely due to inputs from Rice Lake. The dominant family at this site has consistently been a pollution-tolerant family.
Rice Lake flows into this site and has very poor water quality, containing about five times the phosphorus of Fish Lake and contributing a large food source for filter-feeding organisms in the creek such as Simuliidae and Hydropsychidae.

Results for Site 5

Date	Total Number of Organisms	Family Biotic index	EPT	Number of Families	Dominant family	Dominant family % overall
5/15/96	>100	6.0	0	3	Simuliidae	86.0
9/25/96	<100	9.0	0	2	Hirudinea	67.0
5/8/97	>100	6.1	0	5	Simuliidae	92.0
10/1/97	>100	7.0	2	13	Talitridae	36.0
5/6/98	>100	6.6	2	12	Chironomidae	50.0
9/30/98	>100	6.4	2	11	Simuliidae	64.0
5/10/99	>100	6.3	1	10	Chironomidae	80.0
10/4/99	>100	5.9	1	13	Simuliidae	42.0
5/1/00	>100	6.1	3	8	Talitridae	30.0
10/3/00	>100	6.7	1	8	Simuliidae	60.0
10/2/01	>100	6.5	1	8	Simuliidae	62.0
5/16/02	163	6.1	1	5	Simuliidae	81.6
10/4/02	263	6.8	2	11	Talitridae	47.9
10/7/07	81	6.9	0	16	Simuliidae	27.0

Site 6

This sample site is on Rush Creek, which is a tributary to Elm Creek. It is located in the Elm Creek Park Reserve and has a naturally vegetated riparian zone. It is a slow-moving, meandering stream at this site. Just upstream, the south fork of Rush Creek (sample site 4) joins the north fork of Rush Creek. Osseo High School has been monitoring this site since 1996. Teacher Jim Schultz leads the monitoring effort.

Site 6 has been sampled since 1995. When compared to other Elm Creek sites, this site usually shows a lower family biotic index (FBI), a higher EPT and larger number of families. These are all indicators of a relatively healthy stream with fair water quality and some organic pollution probable. The water quality, based on the macroinvertebrate community, has remained fairly stable. However, the 2006 sample was highly influenced by a large number of clams, resulting in a higher biotic index of 7, indicating poor water quality. The number of families and EPT were more indicative of fair water quality. This is one of the few sites in the program with a naturally vegetated riparian zone. This situation probably helps maintain good water quality.

Stonefly Alert! This family of stoneflies, Perlidae, or "Common Stonefly" was collected in the spring. This common stonefly has a tolerance value of 1 (low) and is a predator.

Site 6

Dominant Family

Order: Diptera (True Flies)
Family: Chironomidae
Tolerance Value: 8 (high)

Results for Site 6

Date	Total Number of Organisms	Family Biotic index	EPT	Number of Families	Dominant family	Dominant family % overall
10/2/02	302	5.0	4	13	Hydropsychidae	50.7
5/6/03	258	5.9	5	12	Chironomidae	48.4
5/4/04	347	5.8	4	125	Chironomidae	34.0
10/1/04	200	6.4	3	6	Chironomidae	67.5
5/10/05	293	6.0	4	10	Simuliidae	35.0
5/8/06	142	6.9	5	19	Hyalellidae	53.5
10/10/06	350	7	2	13	Hyalellidae	27.7
4/30/07	81	6.2	5	16	Chironomidae	42.0

Site 17

This site is located on the Wayzata High School grounds just downstream from the school's storm water holding ponds near the crossing of Elm Creek and Peony Lane. Wayzata High School students under the leadership of teacher Susie Newman monitored this site in May 2007. The dominant species is Chironomidae, or the black fly or "gnat." This fly has a tolerance value of 6 or moderate and is fairly tolerant to pollution. The FBI of 6.6 indicates poor water quality.

Site 17

Champlin High Students

Results for Site 17

Date	Total Number of Organisms	Family Biotic index	EPT	Number of Families	Dominant family	Dominant family % overall
5/9/06	145	6.3	2	10	Simuliidae	33.1
5/16/07	127	6.6	2	8	Chironomidae	60.0

Site 26

The site is the most downstream site on Elm Creek. It is located in Josephine Nunn Park in Champlin between Hayden Lake and the Mill Pond. It used to be in a forested stretch of river with high banks and several riffle areas. In 2003 development started along the banks and the entire character of the river has changed. Pete Ockuly and his students from Champlin Park are currently monitoring the site.

The quality of Elm Creek at site 26 appears to be declining. Although there are only seven data points over six years, a trend analysis indicates a definite decline in the number of families and the EPT and an increase in FBI. The water quality extrapolated from the FBI has gone from "Good" in 2001 to "Very Poor" in 2004 and 2005. There appeared to be a downward trend in the number of families until 2005, when 18 families were found.

Results for Site 26

Date	Total Number of Organisms	Family Biotic index	EPT	Number of Families	Dominant family	Dominant family % overall
10/9/01		4.9	7	15	Hydropsychidae	63.0
10/7/02	167	6.1	4	12	Asellidae	38.0
5/16/03	246	6.9	5	11	Simuliidae	23.0
9/25/03	346	7.7	1	8	Asellidae	63.9
5/6/04	211	7.5	5	13	Hyalellidae	57.0
10/6/05	121	7.0	3	18	Asellidae	32.0
10/4/06	79	5.9	5	16	Hydropsychidae	23.0
10/8/07	97	6.1	3	11	Hydropsychidae	33.0